

What Is Claimed Is:

1. A method for diagnosing, or identifying a predisposition to the development of, a macular degeneration-related disorder in a subject, comprising detecting in a biological sample from the subject the presence or abnormal levels of an autoantibody against, or an immune complex containing, at least one macular degeneration-associated molecule.
2. The method of claim 1, wherein said macular degeneration-associated molecule is selected from the group consisting of fibulin-3, vitronectin,  $\beta$  crystallin A2,  $\beta$  crystallin A3,  $\beta$  crystallin A4,  $\beta$  crystallin S, glucose-regulated protein 78 kD (GRP-78), calreticulin, 14-3-3 protein epsilon, complement 1q binding protein/hyaluronic acid binding protein, serotransferrin, albumin, keratin, pyruvate carboxylase, and villin 2.
3. The method of claim 1, wherein the detecting comprises contacting the biological sample with said at least one macular degeneration-associated molecule or an antigenic fragment thereof, and detecting a specific interaction between the autoantibody and the at least one macular degeneration-associated molecule or an antigenic fragment thereof.
4. The method of claim 1, wherein the detecting comprises precipitating the immune complex from the biological sample.
5. The method of claim 1, further comprising detecting a level of the autoantibody or immune complex in a control subject and comparing levels of the autoantibody or immune complex in the subject and the control subject.
6. The method of claim 1, wherein said biological sample is a urine, eye fluid, blood plasma, serum, whole blood, or lymph fluid from the subject.
7. The method of claim 3, further comprising the step of precipitating a complex formed between the autoantibody and the at least one macular degeneration-associated molecule or an antigenic fragment thereof before the detecting step.
8. The method of claim 3, further comprising the step of contacting the biological sample with a labeled antibody that competes with the autoantibody to form complexes with the at

least one macular degeneration-associated molecule or an antigenic fragment thereof.

9. The method of claim 8, wherein the at least one macular degeneration-associated molecule or an antigenic fragment thereof is bound to a solid phase and the method further comprises the step of removing the solid phase from the serum sample to separate the complexes from unbound, labeled antibody.

10. The method of claim 1, wherein the macular degeneration-related disorder is Malattia Leventinese.

11. The method of claim 10, wherein said at least one macular degeneration-associated molecule is selected from the group consisting of fibulin 3,  $\beta$  crystallin A2,  $\beta$  crystallin A3,  $\beta$  crystallin A4,  $\beta$  crystallin S, glucose-regulated protein 78 kD (GRP-78), calreticulin, complement 1q binding protein/hyaluronic acid binding protein, 14-3-3 protein epsilon, serotransferrin, albumin, keratin, pyruvate carboxylase, and villin 2.

12. The method of claim 1, wherein the macular degeneration-related disorder is age-related macular degeneration.

13. The method of claim 12, wherein said at least one macular degeneration-associated molecule is vitronectin, haptoglobin, or immunoglobulin light chain.

14. The method of claim 1, further comprising detecting at least one macular degeneration-associated genetic marker, drusen-associated phenotypic marker, or drusen-associated genotypic marker in the subject.

15. The method of claim 1, further comprising examining the subject with an ophthalmologic procedure.

16. The method of claim 1, wherein the macular degeneration-related disorder is Malattia Leventinese, and the method comprises detecting in a biological sample from the subject the presence or abnormal levels of at least one autoantibody, wherein said autoantibody specifically binds to fibulin 3,  $\beta$  crystallin A2,  $\beta$  crystallin A3,  $\beta$  crystallin A4,  $\beta$  crystallin S, glucose-regulated protein 78 kD (GRP-78), calreticulin, complement 1q binding protein,

hyaluronan-binding protein, 14-3-3 protein epsilon, serotransferrin, albumin, keratin, pyruvate carboxylase, or villin 2.

17. The method of claim 16, wherein said biological sample is a urine, eye fluid, blood plasma, serum, whole blood, or lymph fluid from the subject.

18. The method of claim 16, wherein the detecting comprises contacting the biological sample with said at least one macular degeneration-associated molecule or an antigenic fragment thereof, and detecting a specific interaction between the autoantibody and the at least one macular degeneration-associated molecule or an antigenic fragment thereof.

19. The method of claim 16, further comprising detecting at least one genetic marker associated with Malattia Leventinese.

20. The method of claim 1, wherein the macular degeneration-related disorder is age-related macular degeneration, and the method comprises detecting in a biological sample from the subject the presence or an abnormal level of an autoantibody against vitronectin, choroid, Bruch's membrane, RPE, or a retina-associated protein.

21. The method of claim 20, wherein said biological sample is a urine, eye fluid, blood plasma, serum, lymph fluid, or whole blood from the subject.

22. The method of claim 20, wherein the detecting comprises contacting the biological sample with vitronectin or an antigenic fragment of vitronectin, and detecting a specific interaction between the autoantibody and vitronectin or a specific interaction between the autoantibody and the antigenic fragment of vitronectin.

23. The method of claim 20, further comprising detecting at least one genetic marker associated with age-related macular degeneration.

24. A method for treating a macular degeneration-related disorder in a subject, comprising inducing immune tolerance to at least one macular degeneration-associated molecule in the subject, wherein said macular degeneration-associated molecule is selected from the group consisting of fibulin 3,  $\beta$  crystallin A2,  $\beta$  crystallin A3,  $\beta$  crystallin A4,  $\beta$  crystallin S, glucose-

regulated protein 78 kD (GRP-78), calreticulin, complement 1q binding protein/hyaluronic acid binding protein, 14-3-3 protein epsilon, serotransferrin, albumin, keratin, pyruvate carboxylase, and villin 2.

25. The method of claim 24, wherein said immune tolerance is induced by administering to the subject a tolerogenic form of the macular degeneration-associated molecule.

26. The method of claim 24, wherein said disorder is age-related macular degeneration or Malattia Leventinese.

27. A method for identifying a gene that causes a macular degeneration-related disorder, comprising detecting an autoantibody against, or an immune complex containing, an autoantigen that is encoded by the gene.

28. The method of claim 27, wherein said macular degeneration-related disorder is AMD.

29. A kit for diagnosing, or identifying a predisposition to the development of, a macular degeneration-related disorder in a subject, comprising at least one macular degeneration-associated molecule or an antigenic fragment thereof, a solid support, wherein said macular degeneration-associated molecule or said antigenic fragment thereof is bound to the solid support, and a binding molecule that is capable of specifically binding to a human antibody; wherein said macular degeneration-associated molecule selected from the group consisting of fibulin-3, vitronectin,  $\beta$  crystallin A2,  $\beta$  crystallin A3,  $\beta$  crystallin A4,  $\beta$  crystallin S, calreticulin, complement 1q binding protein/hyaluronic acid binding protein, 14-3-3 protein epsilon, serotransferrin, albumin, keratin, pyruvate carboxylase, and villin 2.

30. The kit of claim 29, wherein said binding molecule is conjugated to a detectable label.

31. The kit of claim 29, wherein said macular degeneration-related disorder is Malattia Leventinese, and said at least one macular degeneration-associated molecule is selected from the group consisting of fibulin 3,  $\beta$  crystallin A2,  $\beta$  crystallin A3,  $\beta$  crystallin A4,  $\beta$  crystallin S, glucose-regulated protein 78 kD (GRP-78), calreticulin, complement 1q binding protein/hyaluronic acid binding protein, 14-3-3 protein epsilon, serotransferrin, albumin, keratin, pyruvate carboxylase, and villin 2.

